Reportable Disease Surveillance in Virginia, 2005

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Introduction

The Virginia Department of Health, Office of Epidemiology is pleased to present its seventeenth annual report of disease surveillance activities. This report summarizes morbidity data reported by the Virginia Department of Health, Office of Epidemiology to the federal Centers for Disease Control and Prevention (CDC) during calendar year 2005.

The Office of Epidemiology, in conjunction with health departments in districts throughout Virginia, is responsible for the ongoing statewide surveillance of diseases according to the provisions of the *Regulations for Disease Reporting and Control*. Disease surveillance involves the collection of pertinent data, the tabulation and evaluation of the data, and the dissemination of the information to all who need to know. These data provide the foundation for public health activities to reduce morbidity.

Diseases must be diagnosed and reported to the health department before case investigations can occur and disease control activities can begin. Physicians, personnel in medical care facilities, laboratories, and other health care providers are therefore key to the surveillance process. By reporting diseases, health care personnel aid the health department in identifying unusual disease patterns occurring in the community. The health department notifies physicians of these unusual disease patterns, which helps physicians provide a more rapid diagnosis and treatment of individuals who present with compatible symptoms.

This report summarizes those diseases and conditions that are either listed as officially reportable in the *Regulations for Disease Reporting and Control* or that represent other communicable diseases of public health interest that were reported to the Virginia Department of Health. The report is divided into four sections as described below.

Introduction and Data Summary: Tables summarizing 2005 morbidity are included in this introductory section. These tables include the list of reportable diseases; ten year trends; the number of reports and incidence rate per 100,000 population for selected diseases by health planning region, age group, race, and sex; and the number and percent of reports by quarter of onset.

Descriptive Epidemiology of Reportable Diseases: This section consists of narrative and graphics summarizing the populations reported with each disease or condition. Included is information about the total number of cases reported; the ten year trend in reported cases; the demographics of cases in terms of their age, race and sex; and the distribution of cases by date of onset and health planning region of the state. Mortality, microbial species, and other attributes of diseases also are presented when applicable. Sources of information include the CDC (http://www.cdc.gov/) and *Infectious Disease Epidemiology* (Nelson, K., Williams, C., & Graham, N., 2004).

Population-based rates are often presented to provide a measure of disease frequency in the population and to allow for comparisons between groups. In calculating rates, population estimates for 2004 prepared by the United States Census Bureau for the state's cities and counties and total population were used. Some additional notes on coding are listed below.

Race is usually presented as black, white, or other. The "other" race category includes Asian/Pacific Islanders, American Indians, and Alaskan Natives.

Date of onset is used whenever it is available. Onset is the time at which symptoms first occurred. Some cases reported in 2005 experienced onset prior to the year of report. In some situations information is only available on the date of report, the date the information was furnished to the CDC, or the date the report was first received in the Office of Epidemiology, and these dates are used in place of date of onset. Date of specimen collection or date of hospital admission may also be used to estimate date of onset.

To the extent possible, rates are calculated based on residence of the patient. When the address of the patient is neither reported by the health care provider nor ascertained by the health department, then the location of the reporting source, i.e., the physician, hospital, or laboratory, is used.

Number of Cases and Rate by Locality: This section of the report presents the number of cases and incidence rate per 100,000 population for selected diseases by locality, district, and health planning region. Cities and counties that have separate health departments are listed individually. Those that share one health department are combined. Caution is urged in interpreting the data in this section as well as in the following section. Localities with small populations may have large disease rates but only a few reported cases of disease. Both number of cases and incidence rates should be weighed when using these tables to rank morbidity by city or county.

Maps of Incidence Rates: The first map in this section illustrates the location of the health planning regions in Virginia. Following that, disease-specific maps are presented which depict the incidence rates listed in the previous section. The last map is a transparency that shows the various cities and counties in Virginia. For each disease-specific map, the rates have been divided into four categories using the following process:

- Category 1 Localities reporting zero cases of the disease.
- Category 2 Localities with an incidence rate greater than zero and up to the mean for the state.
- Category 3 Localities with an incidence rate greater than the mean and up to one standard deviation above the mean for the state.
- Category 4 Localities with an incidence rate greater than one standard deviation above the mean for the state.

The Office of Epidemiology hopes that the readers of this report will find it to be a valuable resource for understanding the epidemiology of reportable diseases in Virginia. Any questions or suggestions about this report may be directed to Julie Plagenhoef, Virginia Department of Health, Office of Epidemiology, P.O. Box 2448, 109 Governor St., 5th Floor, Richmond, Virginia 23218. Phone number 804-864-8141.

Data Summary

Following this section are pages containing tables of statewide summary data for selected diseases. Table 1 is a list of reportable conditions in Virginia in 2005. Table 2 presents the number of cases of selected diseases reported annually during the past ten years. The number of cases of selected diseases reported for 2005 is delineated by age group in Table 3, by race in Table 4, and by sex in Table 5. Table 6 shows number of cases and rate per 100,000 population by health planning region. Table 7 provides the number and percent of cases with onset by quarter of the year. A brief summary of the major findings presented in these tables follows.

TREND – Notable increases in numbers of cases (>5%) were observed for the following diseases in 2005 compared to 2004: amebiasis, chickenpox, cryptosporidiosis, cyclosporiasis, ehrlichiosis, Shiga toxin-producing *Escherichia coli* infection, giardiasis, invasive *Haemophilus influenzae* infection, Kawasaki syndrome, Lyme disease, meningococcal infection, Q fever, Rocky Mountain spotted fever, invasive group A streptococcal disease, invasive *Streptococcus pneumoniae* in children less than 5 years old, early syphilis, tuberculosis, typhoid fever, and *Vibrio* infection. Notable decreases occurred for the number of cases of AIDS, arboviral infection, infant botulism, campylobacteriosis, hepatitis A, acute hepatitis B, acute hepatitis C, elevated blood lead levels in children, listeriosis, malaria, mumps, pertussis, shigellosis, and toxic shock syndrome.

<u>AGE</u> – Infants (age <1 year) had the greatest incidence rates for campylobacteriosis, cryptosporidiosis, invasive *Haemophilus influenzae* infection, Kawasaki syndrome, listeriosis, meningococcal infection, pertussis, salmonellosis, and reportable invasive *Streptococcus pneumoniae*. No cases of AIDS, amebiasis, arboviral infection, brucellosis, cyclosporiasis, ehrlichiosis, gonorrhea, hemolytic uremic syndrome, hepatitis A, acute hepatitis B, acute hepatitis C, HIV infection, legionellosis, Lyme disease, mumps, Q fever, Rocky Mountain spotted fever, early syphilis, tetanus, toxic shock syndrome, tuberculosis, typhoid fever, or *Vibrio* infection were reported in infants.

Children aged 1-9 years had the highest incidence rates for chickenpox, Shiga toxin-producing *Escherichia coli* infection, giardiasis, hepatitis A, elevated blood lead levels in children, shigellosis, and typhoid fever. No cases of AIDS, brucellosis, cyclosporiasis, ehrlichiosis, acute hepatitis B, acute hepatitis C, listeriosis, mumps, Q fever, early syphilis, tetanus, or toxic shock syndrome were reported among children in this age group. This age group was reported with the lowest rates of *Chlamydia trachomatis* infection and malaria. The single case of hemolytic uremic syndrome was reported in the 1-9 year old age group.

The 10-19 year age group had the lowest rates for campylobacteriosis, elevated blood lead levels in children, and invasive group A streptococcal disease. There were no cases of brucellosis, cyclosporiasis, ehrlichiosis, hemolytic uremic syndrome, Kawasaki syndrome, legionellosis, listeriosis, mumps, Q fever, or tetanus reported in this age group. The only case of toxic shock syndrome was reported in the 10-19 year olds.

Persons in their twenties were reported with higher rates of *Chlamydia trachomatis* infection, gonorrhea, early syphilis, and tuberculosis than persons in other age groups. Persons in their thirties had the highest incidence rates for AIDS, and amebiasis. The rate of HIV

infection was almost the same for 20-29 year olds and 30-39 year olds. Persons in their forties had the highest rates of acute hepatitis B, Lyme disease, malaria, and Rocky Mountain spotted fever. The fifty years and older age group had the highest rates of ehrlichiosis, legionellosis, invasive group A streptococcal disease, and *Vibrio* infection. The only cases of brucellosis and tetanus were also reported from this age group.

<u>RACE</u> – Among conditions where race was known for at least 80% of cases, the black population had a higher incidence rate for AIDS, *Chlamydia trachomatis* infection, gonorrhea, invasive *Haemophilus influenzae* infection, HIV infection, legionellosis, malaria, early syphilis, and tuberculosis. The white population had a higher incidence rate for arboviral infection, cyclosporiasis, ehrlichiosis, acute hepatitis C, listeriosis, pertussis, Rocky Mountain spotted fever, reportable invasive *Streptococcus pneumoniae* infection, and *Vibrio* infection.

<u>SEX</u> – In general, the incidence rates of reportable diseases tend to be higher in males than females. The following lists some exceptions seen in the 2005 data. Females were reported to have the following diseases more often than males: *Chlamydia trachomatis* infection, gonorrhea, pertussis, and salmonellosis. The incidence rates were very similar or the same for males and females for arboviral infections, infant botulism, brucellosis, cryptosporidiosis, cyclosporiasis, ehrlichiosis, Shiga toxin-producing *Escherichia coli* infection, invasive *Haemophilus influenzae* infection, hemolytic uremic syndrome, hepatitis A, acute hepatitis C, Kawasaki syndrome, listeriosis, Lyme disease, meningococcal infection, mumps, Rocky Mountain spotted fever, shigellosis, invasive group A streptococcal disease, and typhoid fever.

<u>REGION</u> – The northwest health planning region had the highest incidence rates of campylobacteriosis, chickenpox, invasive *Haemophilus influenzae* infection, listeriosis, pertussis, invasive group A streptococcal disease, and invasive *Streptococcus pneumoniae* in children less than 5 years old compared to the other regions of the state. No cases of infant botulism, brucellosis, cyclosporidiosis, ehrlichiosis, Kawasaki syndrome, mumps, Q fever, tetanus, toxic shock syndrome, or typhoid fever were reported from the northwest region. This region reported the only case of hemolytic uremic syndrome in the state.

The northern health planning region experienced the highest incidence rates of amebiasis, Shiga toxin-producing *Escherichia coli* infection, hepatitis A, Lyme disease, shigellosis, tuberculosis, and typhoid fever. The lowest incidence rates of chickenpox, *Chlamydia trachomatis* infection, gonorrhea, invasive *Haemophilus influenza*e infection, acute hepatitis B, elevated blood lead levels in children, legionellosis, and invasive group A streptococcal disease were reported from the northern region. No cases of infant botulism, hemolytic uremic syndrome, tetanus or toxic shock syndrome were reported in this region. The only case of brucellosis was reported from the northern region.

The southwest health planning region had the highest incidence rates for cryptosporidiosis, giardiasis, acute hepatitis B, and acute hepatitis C. It had the lowest rates for AIDS, hepatitis A, HIV infection, Lyme disease, early syphilis, and tuberculosis. There were no cases of arboviral infection, infant botulism, brucellosis, hemolytic uremic syndrome, mumps, tetanus, toxic shock syndrome, or typhoid fever reported from the southwest.

The central health planning region experienced the highest rates of AIDS, arboviral infection, HIV infection, elevated blood lead levels in children, and salmonellosis. The lowest rates of campylobacteriosis, cryptosporidiosis, meningococcal infection, pertussis and reportable invasive *Streptococcus pneumoniae* infection were seen in this region. No cases of infant botulism, brucellosis, cyclosporiasis, ehrlichiosis, hemolytic uremic syndrome, Q fever, tetanus, toxic shock syndrome, or typhoid fever were reported from the central region.

The eastern health planning region had the highest incidence rates of *Chlamydia trachomatis* infection, ehrlichiosis, gonorrhea, Kawasaki syndrome, meningococcal infection, Rocky Mountain spotted fever, early syphilis, and *Vibrio* infection. That region also experienced the lowest rate of amebiasis, Shiga toxin-producing *Escherichia coli* infection, giardiasis, malaria, and salmonellosis. No cases of brucellosis, cyclosporiasis, hemolytic uremic syndrome, mumps, or Q fever were reported from the eastern region. The only cases of infant botulism, tetanus, and toxic shock syndrome were reported from this region.

ONSET – A few diseases showed distinct seasonal trends. The largest proportion of cases of cyclosporiasis (67%) and acute hepatitis B (42%) occurred during the first quarter of the year. The largest proportion of ehrlichiosis (62%), pertussis (42%), and reportable invasive *Streptococcus pneumoniae* infection (51%) were reported during the second quarter of the year. The largest proportion of listeriosis (70%) and *Vibrio* infection (88%) occurred during the second and third quarter of the year. The largest proportion of campylobacteriosis (35%), cryptosporidiosis (54%), Shiga toxin-producing *Escherichia coli* infection (41%), Rocky Mountain spotted fever (61%), salmonellosis (40%), and shigellosis (37%) occurred during the third quarter of the year. All cases of arboviral infection and a large proportion of malaria (73%) and typhoid fever (75%) occurred during the third and fourth quarters of the year. The smallest proportion of chickenpox (9%) occurred during the third quarter of the year.

Table 1. Reportable Diseases in Virginia, 2005

Acquired immunodeficiency syndrome (AIDS) Meningococcal infection

Ambebiasis Monkeypox Anthrax Mumps

Arboviral infection (e.g., EEE, LAC, SLV, WNV) Ophthalmia neonatorum

Botulism Outbreaks, All (including foodborne, nosocomial, Brucellosis occupational, toxic substance-related, waterborne,

Campylobacter infectionand other outbreaks)ChancroidPerussis (Whooping cough)

Chickenpox Plague

Chlamydia trachomatis infection Poliomyelitis
Cholera Psittacosis
Creutzfieldt-Jakob disease if <55 years of age Q fever

Cryptosporidiosis Rabies, human and animal
Cyclosporiasis Rabies treatment, post exposure
Diphtheria Rocky Mountain spotted fever

Ehrlichiosis Rubella (German measles), including congenital

Escherichia coli O157:H7 and other rubella syndrome

enterohemorrhagic E. coli infections Salmonellosis

Giardiasis Severe acute respiratory syndrome (SARS)

Gonorrhea Shigellosis
Granuloma inguinale Smallpox

Haemophilus influenzae infection, invasive Streptococcal disease, Group A, invasive

Hantavirus pulmonary syndrome Streptococcus pneumoniae, invasive if <5 years of age

Hemolytic uremic syndrome (HUS) Syphilis Hepatitis A (IgM+) Tetanus

Hepatitis B (acute and chronic)

Toxic shock syndrome

Hepatitis C (acute and chronic)

Toxic substance-related illness

Hepatitis, other acute viral Trichinosis

Human immunodeficiency virus (HIV) infection Tuberculosis disease (Mycobacteria)

Influenza Tuberculosis infection in children <4 years

Kawasaki syndrome Tularemia
Lead - elevated blood levels Typhoid fever
Legionellosis Typhus

Leprosy (Hansen disease)

Unusual occurrence of disease of public health concern

Listeriosis Vaccina, disease or adverse event

Lyme disease Vancomycin-resistant Staphylococcus aureus

Lymphogranuloma venereum Vibrio infection

Malaria Viral hemorrhagic fever

Measles (Rubeola) Yellow fever